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ELECTRIC CORPORATION

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AIR ARM DIVISION

25X1

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BOX 746, BALTIMORE 3, MD.

10 July 1957

25X1

SUBJECT: Contract TA-3034
Westinghouse Reference AAD-30465
Monthly Progress Report #1

In accordance with Item 3 of the subject contract, forwarded herewith are three (3) copies of Monthly Progress Report #1 for period 28 May 1957 to 30 June 1957.

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File TA-3034 (T+P)

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Sales Engineer

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Copies 1-2 &

3 TA-3034

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MONTHLY PROGRESS REPORT # 1

on the

TERRAIN AVOIDANCE RADAR SYSTEM

for the period from

28 May 1957 to 30 June 1957

Westinghouse Reference

G.O. AAD-30465

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WESTINGHOUSE ELECTRIC CORPORATION

Air Arm Division

Friendship International Airport

Baltimore, Maryland

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Progress From 28 May 1957 to 30 June 1957

This report covers work performed under advance authorization from 21 January 1957 to 27 May 1957 in addition to work performed during the report period under the subject contract.

The System study has been completed and a Design Specification submitted for approval as required by the contract. The status of the various components of the system are discussed in what follows.

ANTENNA

A breadboard feed scanned horn has been built and tested. A manually positioned feed which can later be mechanized was used. The desired 30 degrees scan was achieved with very little beam deterioration.

MODULATOR and R. T.

Design of the modulator has been completed. Transformers and other long procurement time components have been ordered. Some delay has been experienced in obtaining an MA-207 magnetron. The manufacturer received a lot of bad ceramic which resulted in the scrapping of all magnetrons using this material. Due to the substantial weight reduction over the 6799, at little or no sacrifice of system performance as explained in the Design Specification, every effort will be made to obtain an MA-207 for evaluation in this system.

A breadboard has been built and tested for use in this system. The I. F. amplifier used in another radar was adopted. The phantastron control circuit has been miniaturized and incorporated in the A F C I. F. chassis.

SYNCHRONIZER

A transistorized breadboard of most of the circuits has been built and tested. Circuits for marker phasing, altitude display early starting sweep and video range gating have not been designed yet.

"E" Scope

About 70% of the circuits have been breadboarded and tested. Circuits to provide range switching have not been designed. Further design effort is needed on the profile selector.

"X" Scope

Considerable effort was expended on direct-coupled deflection circuits using subminiature tubes. Difficulty was experienced achieving the required sweep voltage amplitude without exceeding tube ratings due to the high frequency response required to perform the vertical multiplexing. Effort is now being applied to design of circuits using miniature tubes. A linear sweep generator for the 16.5 cps horizontal sweep has been breadboarded and tested.

RECEIVER

The design of a receiver for a .25 micro-second pulse has been completed. A receiver breadboard has been built. The complete receiver is built in one package. All long procurement time parts have been ordered.

POWER SUPPLY

Final power requirements cannot be determined until the major units are more completely designed. In the interim, breadboard work is progressing on the regulator sections and parts known to be required are being ordered.

FUTURE ACTIVITIES

During the next month, design and breadboarding of circuits will continue. A larger antenna with beamwidths equal to $1^{\circ} \times 1.5^{\circ}$ as contemplated for use in the system will be built so that more accurate determination of beamwidth deterioration can be made. If a magnetron can be procured, life tests will be made.